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Robertson
Response



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: ARLEN L. ROESNER, et al.

Serial No.: 10/017,543

Examiner: Boris L. Chervinsky

Filed: December 13, 2001

Art Unit: 2835

Title: THERMAL INTERFACE

Box Non-Fee Amendment
Commissioner for Patents
Washington, D.C. 20231

RESPONSE TO OFFICE ACTION

Sir:

In response to the Office Action dated July 9, 2002, consideration of the following remarks is respectfully requested.

Claims 1-30, of which claims 1, 10 and 22 are independent, are in the application.

Dependent claims 4 and 15 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite. The claims in question state that "the thermally-conductive [carrier] material comprises a thin, thermally-conductive plastic sheet". The position of the Office is that the term "thin" has not been defined in the specification. This rejection is respectfully traversed.

First, with reference to page 5, lines 27-28, of the specification, it will be seen that the term "thin" applies to both metal and plastic carriers. Secondly, although it is believed that the meaning of "thin" is well understood in the relevant art and therefore requires no elaboration, an example

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of what is meant by the term is described in U.S. patent 5,912,805 which has been incorporated by reference in the present application "for its teaching of various materials that may be used in the construction of multi-layer thermal interfaces" (See: Specification, page 2, lines 28-30). Specifically, the incorporated '805 patent, in column 1, lines 30-31, describes a substrate as having "a thickness of approximately 0.002 inch (although other aluminum and/or copper foil thickness (sic) may be utilized)."

Because the term "thin" is well understood in the art to which the present invention pertains, and because in any case an example thereof is clearly described in the incorporated document, it is believed that the term in question is properly defined within the meaning of Section 112; accordingly, it is submitted that the Section 112 rejection should be withdrawn.

Independent claims 1 and 22, along with dependent claims 2-4, 6-9, 23-25 and 27-30 stand rejected under 35 U.S.C. 102(a) as anticipated by Green, et al.; dependent claims 5 and 26 stand rejected under Section 103(a) as unpatentable over Green, et al.; independent claim 10 and dependent claims 11, 13-15, 17-21 stand rejected under Section 103(a) as unpatentable over Green, et al., in view of Tzeng, et al.; dependent claim 16 stands rejected under Section 103(a) as unpatentable over Green, et al., in view of Tzeng, et al.; and dependent claim 12 stands rejected under Section 103(a) as unpatentable over Green, et al., in view of Tzeng and Lee, et al. All of these rejections are respectfully traversed.

The principal reference applied to all of the claims is Green, et al.; if this patent is inapplicable, none of the rejections can stand. Further, it is axiomatic that if the independent claims are patentable, the claims dependent therefrom are likewise patentable. In re Fine, 5 USPQ2d 1596,

1600 (Fed. Cir. 1988). It is applicants' position that independent claims 1, 10 and 22 are clearly patentable over the cited art.

Common to all of the claims is a thermal interface comprising:

- a carrier having opposed surfaces;
- a layer of phase-change material on one of the surfaces of the carrier; and
- a layer of a pliable, thermal compound on the other of the surfaces of the carrier.

Green, et al., do not disclose the claimed thermal interface. With reference to FIG. 4 of Green, et al., the figure principally relied upon by the Office, the interface member 43 comprises a substrate 44 coated on both sides 45 and 46 with a dry film phase change material. Accordingly, the statement in the Office Action that in Green, et al., "the carrier [has] a layer of a phase-change material on one side and a layer of a pliable thermal compound on the other side 45, 46" is clearly in error.

The further statement by the Office that "paraffin-based phase change materials and thermally conductive grease compounds are widely used and known" may be true, but again, nowhere in Green, et al., or in any other reference of which applicants are aware, is the claimed thermal interface to be found.

The Office Action also makes reference to the "Background of the Invention" section of Green, et al. That section, in column 2 of the patent, describes the problems associated with silicone grease and explains that the Green, et al., invention overcomes those problems by using a dry film phase change material. In other words, the Green invention eliminates silicone grease which is one example of the "layer of a

pliable, thermal compound" set forth in the claims of the present application. Once again, nowhere in the "Background of the Invention" of Green, et al., or anywhere else in that patent or in any other cited reference is the thermal interface claimed in the present application disclosed or even suggested.

It is axiomatic that a Section 102 rejection requires that each and every element of the claimed invention be found in the prior art reference. The Green, et al., patent falls far short of meeting this stringent requirement. Accordingly, independent claims 1 and 22 are submitted to be patentable over the Green, et al., reference.

For the same reasons, independent claim 10 is submitted to be patentable over the combination of Green, et al., and Tzeng, et al.

Moreover, it is further submitted that the Section 103 rejections fail to comply with the requirements for a rejection based on obviousness. Not only is at least one claimed element missing from the references, but there is no suggestion for combining the applied references as urged. There has not been cited, and it is submitted that the Office cannot cite, any suggestion in the art that the references relied upon, either by themselves or in combination, meet the limitations of the rejected claims. In re Rouffet, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998).

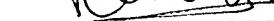
The remaining references of record have been reviewed but do not appear to be relevant to the claimed subject matter of the present application.

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In light of the foregoing, reconsideration and withdrawal
of the rejection of claims 1-30 are respectfully requested.

Respectfully submitted,



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